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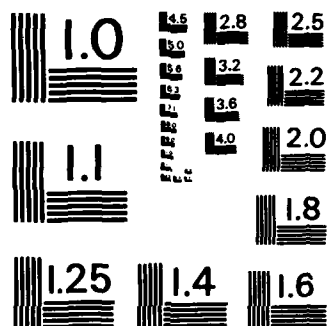
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Institute of Laboratory Animal Resources

Final Report

Earl W. Grogan, D.V.M.

November 1983

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<p>During the contract period ILAR continued to serve the scientific and biomedical research communities as a key advisory group in the laboratory animal field, and to maintain liaison with other national and international organizations in areas of mutual interest. The Institute's goal remained one of providing information that will help to improve the availability, quality, care, and humane and scientifically valid use of laboratory animals. In</p> <p style="text-align: right;">(continued on reverse)</p>			

pursuit of that goal, ILAR continued to develop guidelines for the care and use of laboratory animals; published and distributed five issues of the quarterly journal ILAR News, and also mailed out 5,678 books, pamphlets, conference proceedings, and reprints of ILAR documents as well as material prepared by other organizations; and provided a forum for the discussion of important laboratory animal issues through sponsorship of a conference. ILAR continued operation of its Animal Models and Genetic Stocks Information Exchange Program, through which the staff continued to collect and disseminate information on genetically defined strains and stocks of laboratory animals that are useful for studies of human physiology and disease. Through publication in ILAR News and responses to 593 individual letters and telephone inquiries, staff members provided answers concerning sources, uses, and husbandry of laboratory animals. Concomitantly, staff members urged scientists to use correct nomenclature in designating research animals. The Council met twice to provide program guidance to ILAR. The Committee on Animal Models and Genetic Stocks (AMGS) advised the staff on conduct of the information exchange program and about topics of importance in the areas of animal models and resources. That committee organized a March 1983 conference entitled "New Frontiers in Mammalian Reproduction and Development," and outlined future workshops for which separate funding would be sought.

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INTRODUCTION

The Institute of Laboratory Animal Resources (ILAR) was founded in 1952 as a national, nongovernmental organization under the auspices of the NRC. As a component of the Commission on Life Sciences, ILAR serves as a national and international resource for compiling and disseminating information on characteristics and sources of laboratory animals, planning and conducting conferences and symposia, surveying existing and required facilities and resources, and promoting high-quality, humane care of laboratory animals in the United States. Since its inception, ILAR has been recognized by government agencies, private biomedical research institutions, pharmaceutical companies, and educational institutions as a key advisory group in the laboratory-animal field. A framework for governmental and institutional animal-welfare policies has been provided through reports prepared by ILAR committees.

A portion of ILAR's core support is provided by Contract No. DAMD17-83-C-3016. These core funds share in the support of standing committees, staff and office functions in operating the Animal Models and Genetic Stocks Information Exchange Program and publishing ILAR News, and development of special projects. Separate funding is normally sought to carry out the latter. Current standing committees are the Council, which guides the development and operation of the entire ILAR program, and the Committee on Animal Models and Genetic Stocks, which provides guidance for the animal models program and related projects.

COMMITTEES SUPPORTED WITH CORE FUNDING

Council

ILAR is guided by a ten-member Council, made up of experts in laboratory animal medicine, zoology, genetics, medicine, and related biomedical sciences. The Council meets three to four times each year to review and provide advice on all aspects of the existing ILAR program and to formulate plans for the initiation of new programs. The Council held meetings on November 17, 1982, and May 31, 1983. In July 1983, the Council was expanded to 12 members to provide expertise in additional areas perceived to be relevant to ILAR's mission.

Committee on Animal Models and Genetic Stocks

The Committee on Animal Models and Genetic Stocks was formed in July 1969 in response to recommendations by the Genetics Society of America and the National Institutes of Health that a central location be established to collect, update, and disseminate information on animal models and genetic stocks that are useful in biomedical research. The Committee advises and assists the staff in collecting information for and running the Animal Models and Genetic Stocks Information Exchange Program; suggests topics for programs, symposia, and workshops; provides material on animal models for ILAR News; and evaluates new and emerging developments in biomedical and laboratory animal science that are relevant to ILAR's activities.

The most recent activity of this committee was to organize and hold a conference entitled "New Frontiers in Mammalian Reproduction and Development." This conference, which was sponsored jointly by ILAR and the Kroc Foundation, was held March 7-10, 1983, at the Kroc Foundation facilities in Santa Ynez, California. Twenty-four key scientists from the United States and abroad convened to exchange information and ideas on the biology of mammalian germ plasm and its manipulation as relevant to basic, clinical, and agricultural sciences. Presentations were organized in the following sessions: Gametogenesis and Fertilization, Embryogenesis, Genetics of Development, Embryonic Engineering, and Embryo Transfer and Implantation. The proceedings will be published in November 1983 in the Journal of Experimental Zoology.

PROGRAMS SUPPORTED WITH CORE FUNDING

ILAR News

ILAR's quarterly journal, ILAR News, plays an important role in the distribution of guidelines and information pertaining to laboratory animals and their care and use. This journal currently has a worldwide circulation of more than 4,100 copies. Typically it contains news concerning past and future local, national, and international meetings; general news and announcements; ILAR and NAS/NRC news; articles and bibliographies on animal models for biomedical research; announcements of recent publications; notices of availability of special animals, organs, and tissues; requests for special animal models; proposed and established federal regulations; lists of reference material available (for sale by the National Academy Press as well as free of charge from ILAR); requests for information; and other items of interest to individuals and organizations involved with laboratory animals. It also frequently includes reports by ILAR committees on various aspects of laboratory animal science, which then are made available as reprints.

Late in 1982 a new section, "News and Notes," was added to the ILAR News. This section contains a wide variety of information of interest to the biomedical research community, including the AAALAC standards, definitions, policies, and procedures for accreditation; animal technology and veterinary medical programs accredited by the American Veterinary Medical Association; and policy or position statements of national organizations on important biomedical science issues. A broad range of special articles is continuously sought, and invited manuscripts are reviewed by the four members of the ILAR News Advisory Panel and the editor. Original articles published to date in 1983 were:

- o Animal Model Needed--Reye's Syndrome. Harriet Kang and Raymond W. M. Chun, Department of Neurology and Pediatrics, University of Wisconsin, Madison (winter).
- o Animal Models of Glaucoma. R. L. Peiffer, Department of Ophthalmology, University of North Carolina, Chapel Hill (winter).
- o The Gray Short-Tailed Opossum: A New Laboratory Animal. John L. VandeBerg, Department of Genetics, Southwest Foundation for Research and Education, San Antonio, Texas (spring).

- o Trends in Primate Imports into the United States. 1982. Including a Discussion of U.S. Domestic Programs and Conservation Considerations. David Mack, TRAFFIC (U.S.A.), Washington, D.C. (summer).
- o Genetic Monitoring Techniques in Rats. Donald V. Cramer, Department of Pathology, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania (summer).
- o Animal Models of Unconventional Slow Virus Infections. Richard F. Marsh, Department of Veterinary Science, University of Wisconsin, Madison (summer).
- o Perfecting the Artificial Heart Technology in Animals. Don B. Olsen, Division of Artificial Organs, University of Utah, Salt Lake City (summer).
- o Profile of a Genetic Contamination: BALB/C-nu Mice. Harold A. Hoffman, Animal Genetic Systems, Rockville, Maryland (fall).
- o Historical Basis of British Veterinary Association Policy on Animal Experiments. John Seamer, British Veterinary Association, London, United Kingdom (fall).

The development and application of techniques to determine genetic homogeneity have made it apparent that genetic contamination has occurred in a significant number of colonies of supposedly inbred rat and mouse strains. Such genetic contamination may result in major losses of research data, time, and money. To emphasize the importance of this problem, Dr. Michael F. W. Festing, Medical Research Council Laboratory Animals Centre, Carshalton, Surrey, United Kingdom, was invited to submit an article to ILAR News. His commentary, entitled Genetic Contamination of Laboratory Animal Colonies: An Increasingly Serious Problem, was published in the Summer 1982 [26(4):6-10] issue. This commentary, the ILAR publication Laboratory Animal Management: Genetics, and the related articles mentioned above are referred to extensively in answering questions ILAR receives on genetic contamination.

Animal Models and Genetic Stocks Information Exchange Program

Individual Inquiries

Building on a program initiated in 1970, the staff has established a broad data base and continues to collect information on the locations of genetically defined, unique, and specialized animal colonies, as well as sources of wild rodents and other animals. Also, a collection of books and reprints is maintained, and continually supplemented, to provide ILAR with information about laboratory animal science and medicine, animal genetics, nomenclature, immunology, and other relevant topics. This collection aids staff members in answering questions and in referring scientists to appropriate references from which to obtain needed animal descriptions and holder listings. During the program year ILAR responded to 593 mail and telephone inquiries from biomedical researchers, professionals and paraprofessionals in the laboratory animal sciences, and others interested in animal care, utilization, and breeding. These inquiries came from both the United States and overseas in topic areas as follows:

- o technical questions about appropriate animal models (315 questions), requiring referral to experts on the subjects of concern and also to books and articles surveying animal models; and about sources of supply and/or locations of investigator colonies of genetically characterized animal stocks, strains, mutants, and congenic lines, as well as exotic or uncommonly used animals
- o questions concerning animal health and husbandry; physical plant facilities and caging; animal welfare and ethics of animal use, as well as about benefits derived from study of animals; alternatives to live animals; need for new placements from colonies that were being disbanded, or for new support to maintain colonies; careers in animal technology and veterinary medicine; numbers of animals used in research and about licensed dealers and registered research facilities; requested listings in Animals for Research - A Directory of Sources (by animal suppliers); and whether ILAR publications were available on particular subjects of interest (278 questions)

As part of their efforts in providing information services, members of the ILAR staff spoke with several journalists during the course of the year to discuss topics such as genetic monitoring of rodent colonies, numbers of animals being used in research and the change in usage over the past 15 years, and unusual or exotic animal models being studied.

Animal Source Directory

One reference of value in conducting the animal models and genetic stocks information exchange program is the ILAR publication on commercially available laboratory species, Animals for Research - A Directory of Sources. Now in its tenth edition, this compendium lists 187 companies that sell rodents, rabbits, dogs, cats, nonhuman primates, domestic farm animals, birds, other vertebrates, and invertebrates for research. The tenth edition was published in 1979 and updated with a supplement in the Fall 1980 ILAR News. The staff plans to begin work on an eleventh edition in late 1983.

Standardized Nomenclature

In the course of answering inquiries on animal models, the ILAR staff has become aware of problems arising from the lack of understanding, on the part of both scientists and commercial animal suppliers, of the rules for and importance of using standardized nomenclature in designating genetically defined mouse and rat strains. For example, researchers are often surprised to learn that, even in the absence of genetic contamination, there may be significant genetic differences between the substrains of a single inbred strain. As a result, inbred mice or rats purchased from one company may respond differently in certain experiments from mice or rats of the same inbred strain purchased from a second company. This type of problem is compounded by the fact that some commercial suppliers do not use appropriate nomenclature or add nonstandardized symbols to standardized designations.

The rules for naming inbred strains, mutant genes, and all types of genetic variations in mice have been developed by the International Committee on Standardized Genetic Nomenclature for Mice. These rules, which have been adopted by both mouse and rat geneticists, can be found in a number of current, readily available publications. One of the most recent of these is:

Green, M. C., ed. 1981. Genetic Variants and Strains of the Laboratory Mouse. Stuttgart: Gustav Fischer Verlag.

At its January 1983 meeting the Committee on Animal Models and Genetic Stocks, the staff, and two invited guests, Dr. Albert E. New, National Cancer Institute, and Dr. Harold A. Hoffman, then with the Division of Research Services, National Institutes of Health, discussed ways in which ILAR might further the use of standardized mouse and rat nomenclature by the biomedical research community and commercial animal suppliers. It was the consensus of the group that the importance of correctly designating stocks of rats and mice should be emphasized in answering inquiries from biomedical scientists. In addition the staff plans to publish the rules in future issues of ILAR News and will use standardized nomenclature in subsequent editions of Animals for Research - A Directory of Sources. The committee has proposed that ILAR organize and hold a workshop on nomenclature and genetic monitoring of laboratory animals. If this project is adopted, separate funding will be sought.

Publication Distribution

Each year the ILAR staff provides thousands of copies of ILAR documents to the biomedical community and general public in the United States and abroad. From November 1982 through October 1983, 5,678 publications were distributed by ILAR or sold by the National Academy Press, categorized as follows:

- o ILAR documents on care and management of laboratory animals, animal models, conservation of animals, physical plant facilities, and other topics - 4,725
- o Non-ILAR publications on careers and laboratory animal topics - 953

Additionally, ILAR News was mailed at no charge to approximately 3,100 U.S. and 1,000 foreign subscribers. During the program year, volume 27, issue numbers 1-4 (Fall 1982 - Summer 1983) and volume 28, number 1 (Fall 1983) were distributed. Copies can be obtained from the Institute of Laboratory Animal Resources, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Interactions with Staff of the Department of Defense and Other Government Agencies

ILAR continued to follow the progress of legislation introduced in Congress designed to regulate the use of animals in biomedical research and testing and/or to set aside funds for promotion and development of "alternatives" to use of whole, live animals. Staff responded to questions from congressional staff members and from an individual in the Office of Technology Assessment

about scientific aspects of proposed legislation and about the scope and feasibility of suggested studies/surveys of care and use of laboratory animals. Additionally, the staff provided the Department of Defense with literature on the value and importance of using animals in research.

PROGRAMS SUPPORTED BY SPECIAL FUNDING

Revision of "Guide for the Care and Use of Laboratory Animals"

A major objective of ILAR is to promote humane, ethical, and appropriate care and use of laboratory animals. One of the ways this is accomplished is through preparation, by ILAR committees, of documents containing guidelines for such care and use. One of the most important of these documents is the Guide for the Care and Use of Laboratory Animals, referred to as the "Guide." Originally prepared by the Animal Care Panel in 1963 as the Guide for Laboratory Animal Facilities and Care, this document has been revised by ILAR four times, in 1965, 1968, 1972, and 1978. Approximately 300,000 copies have been distributed during the past 20 years.

The guidelines in this document are based on established scientific principles, expert opinion, and experience with methods and practices that have proved to be consistent with humane, high-quality animal care. It is a long-standing policy of NIH to require adherence to these guidelines by grantees and contractors in their use of living, warm-blooded vertebrates for purposes of biomedical research. In addition, AAALAC uses the tenets of the "Guide" in evaluating the animal facilities of institutions seeking accreditation.

In September 1982 ILAR was awarded a contract by the Division of Research Resources to prepare a sixth edition of the "Guide." A committee of 14 experts in laboratory animal science and recognized research users of laboratory animals was appointed to undertake this revision. In the conduct of its work the committee held three open meetings to receive input from the public regarding care and use of laboratory animals. The first public meeting was held in Washington, D.C., on May 17, 1983; the second in San Francisco on July 11th; and the third in Chicago on July 12th.

Revision of "A Guide to Infectious Diseases of Mice and Rats"

At present an ILAR committee is engaged in updating the 1971 publication A Guide to Infectious Diseases of Mice and Rats under a contract from the National Cancer Institute. The document, which is expected to be published in 1984, will contain current information on a wide variety of bacterial, viral, mycoplasmal, protozoan, and other infectious diseases of laboratory mice and rats. Each section will present information on the agent, clinical signs, pathology, diagnosis, and control and briefly discuss the way in which each pathogen interferes with research.

Committee on Environmental Conditions in Laboratory Animal Rooms

ILAR is providing guidance to the Veterans Administration (VA), at the agency's request, on its research project to study the control of environmental conditions in laboratory animal rooms. The task of the committee is to evaluate and provide recommendations for VA research protocols, periodically monitor specific research procedures and techniques used by the VA staff, review findings, and make recommendations regarding further studies. The Committee's first meeting was held in May 1983 at the VA Medical Center in Memphis, Tennessee, where the research project will be carried out.

ILAR STAFF

ILAR staff members currently participating in the work funded by core support are:

Earl W. Grogan, Executive Secretary
Dorothy D. Greenhouse, Staff Officer
Andrea L. Cohen, Staff Associate
Violet Collins, Administrative Secretary
Evelyn E. Bracey, Senior Secretary
Cynthia D. Richardson, Secretary

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